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Listing and Amendments to the Claims

1. (currently amended) Imager sequential illumination system comprising:

- a source emitting towards the imager a polychromatic light beam in a **fixed** wavelength ~~region~~ **range** comprising at least three primary colors,
- a ~~device~~ **color wheel** for scrolling colored segments comprising at least three transmissive or reflective **fixed** segments, the **color wheel** ~~scrolling device~~ making it possible to scroll the **fixed** segments over the optical path of the polychromatic light beam so that they successively ~~cut~~ **transmit and filter** the ~~direction of propagation of the~~ **polychromatic light** beam in the case where the **fixed** segments are transmissive, or so that they successively reflect **and filter** the **polychromatic light** beam in the case where the **fixed** segments are reflective, the **fixed** segments being of different colors, and each **fixed** segment having a hue, a saturation, a transmissivity or a reflectivity, and a size that is suitable for obtaining a colored beam exhibiting a primary color with a reference hue when **this fixed segment** it is scrolled over the optical path of the polychromatic light beam,

wherein the **fixed** colored segments are distributed in the **color wheel** ~~scrolling device~~ in an order such that the differences of energies between any two successive colored beams that follow one another, when the **fixed** segments **of the colored wheel** scroll over the optical path of the polychromatice light beam, are the least variable possible **compared to other possible orders**, the energies being defined as perceived by the visual system of a standard observer.

2. (currently amended) The illumination system according to **claim** ~~Claim~~ 1, wherein the **fixed** colored segments are distributed in an order such that the sum of the differences of energies between any two successive colored beams is minimized.

3. (currently amended) The illumination system according to **claim** ~~Claim~~ 2, wherein the ~~scrolling device~~ **color wheel** comprises several **fixed** segments of like color so as to reduce the

mean differences of excitation energies by distributing them over several intersegment transitions.

4. (currently amended) The illumination system according to **claim** ~~Claim~~ 3, wherein the ~~scrolling device~~ **color wheel** comprises a different number of **fixed** segments of primary or recompounded colors so as to reduce the mean differences of excitation energies by distributing them over several intersegment transitions.

5. (currently amended) The illumination system according to **claim** ~~Claim~~ 1, wherein the ~~device for scrolling colored segments comprises a~~ color wheel **is** ~~comprising at least three transmissive or reflective segments, the wheel being~~ mounted on means of rotation so as to scroll the **fixed** segments over the optical path of the **polychromatic** light beam.

6. (currently amended) Method of design of a color wheel for an imager color sequential illumination system, comprising

the step of providing the **color** wheel having at least three transmissive and/or reflective **fixed** segments that are suitable for obtaining successive beams of different colors when the **fixed** segments scroll sequentially through a zone of transmission of an illumintation beam **having a fixed wavelength distribution**, the **fixed** segments being of different or identical colors, each segment having a hue, a saturation, a transmissivity or a reflectivity, and a size that is suitable for obtaining a colored beam exhibiting a reference hue when it crosses the zone of transmission of the illumination beam,

a step of measuring the excitation energies of each colored beam induced by the various segments in the visual system of an observer, and

a step of distributing the **fixed** colored segments over the color wheel in an order such that the differences of measured excitation energies between any two successive colored beams that follow one another, when the **fixed** segments scroll in the order through the transmission zone, are the least variable possible.

7. (currently amended) The method according to **claim** ~~Claim~~ 6, wherein for a color wheel furnished with a determined number of **fixed** segments each having a determined dimension and making it possible to obtain a determined global color temperature, the distributing of the **fixed** segments over the wheel is carried out in such a way that the sum of the differences of energies between any two successive colored beams is the lowest possible.

8. (currently amended) Device of **fixed** colored segments comprising a plurality of juxtaposed zones of different colors making it possible to provide **beams of different colors**, by **an** illumination **beam having a fixed wavelength distribution** ~~of the various zones, beams of different colors~~, wherein the **fixed** zones of different colors are arranged in an order such that when they are successively illuminated according to the order, the differences of energies between any two successive colored beams that follow one another, when the illumination passes from one **fixed** zone to another next **fixed** zone in said order, are the least variable possible, the energies being defined as perceived by the visual system of a standard observer.

9. (currently amended) The device of colored segments according to **claim** ~~Claim~~ 8, wherein the zones of different colors are arranged in an order such that the sum of the differences of energies between any two successive colored beams is the lowest possible.

10. (currently amended) The device of colored segments according to **claim** ~~Claim~~ 8, wherein it comprises a color wheel.